

IN THE CLAIMS

Please amend the following claims.

Claims 1-9 (cancelled)

10. (currently amended) A heat spreader, comprising:
- ~~a first layer of fibers, oriented approximately along a horizontal axis;~~
 - ~~a second layer of fibers, oriented approximately along the same horizontal axis, the second layer having a different fiber density than the first layer;~~
 - ~~a second plurality of fibers in the second layer, oriented approximately along a second horizontal axis, approximately perpendicular to the first set of fibers in the second layer;~~
 - ~~a third plurality of fibers in the second layer, oriented approximately in the vertical direction, approximately perpendicular to the first and second sets of fibers in the second layer;~~
 - ~~a third layer of fibers, having a fiber density different than the fiber density of the second layer; and~~
 - ~~a thermally conductive material disposed about the fibers.~~
- a heat spreader body having a first fiber density within a thermally conductive material;
- a top thermal interface layer formed above the heat spreader body, the top thermal interface layer having a second fiber density within the thermally conductive material that is different from the first fiber density; and
- a bottom thermal interface layer formed below the heat spreader body, the bottom thermal interface layer having a third fiber density within the thermally conductive material that is different from the first fiber density.

11. (currently amended) The heat spreader of claim 10, wherein the ~~first~~ top thermal interface layer and ~~third~~ bottom thermal interface layer layers have a higher fiber density than the ~~second layer~~ heat spreader body.
12. (currently amended) The heat spreader of claim 10, wherein the ~~first and third layers~~ top thermal interface layer and the bottom thermal interface layer have similar fiber densities.
13. (original) The heat spreader of claim 10, wherein the fibers are comprised of carbon.
14. (original) The heat spreader of claim 10, wherein the fibers are woven.
15. (currently amended) The heat spreader of claim 11, wherein the fibers in the ~~first and third layers~~ top thermal interface layer and the bottom thermal interface layer are chopped.

Claims 16-30 (cancelled)

Claim Rejections - 35 U.S.C. §102 and §103

The Examiner has rejected claims 6-10 and 12-14 under 35 USC 102(e) as being anticipated by Tobita (U.S. Patent No. 6,451,418). The Examiner has rejected claims 11 and 15 under 35 USC 103(a) as being unpatentable over Tobita (U.S. Patent No. 6,451,418). Claims 6 – 9 have been cancelled. The Applicant respectfully traverses. The cited reference does not teach all of the elements of the Applicant's claims. In particular, Tobita does not teach the elements of independent claim 10:

*10. A heat spreader, comprising:
a heat spreader body having a first fiber density within a thermally conductive material;
a top thermal interface layer formed above the heat spreader body, the top thermal interface layer having a second fiber density within the thermally conductive material that is different from the first fiber density;
and
a bottom thermal interface layer formed below the heat spreader body, the bottom thermal interface layer having a third fiber density within the thermally conductive material that is different from the first fiber density.*

In contrast, Tobita teaches a single layer having a greater density of fibers in the z-direction than the density of fibers in the x-y plane, but where the density of the layer as a whole is consistent throughout. This is described in Tobita in “embodiment 5” described in Col. 8 lines 27 – 35:

A block-like molded body was prepared by impregnat[ing] a thermosetting benzocyclobutene resin (52 in volume percent) into a three-dimensions woven fabric constituted such that the polybenzasol fibers ...were oriented each 12 in volume percent in the X direction and the Y direction and 24 in volume percent in the Z direction (the thick direction) to heat and press-form in vacuum.

Therefore, the Applicant respectfully submits that independent claim 10 and claims 11 – 15 that depend upon and incorporate the limitations of independent claim 10 are not anticipated or rendered obvious by Tobita.

Application No. 09/955,889
Preliminary Amdt. dated March 1, 2004
Reply to Office Action of December 1, 2003

If there are any additional charges, please charge Deposit Account No. 02-2666.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN

Date: 3/1, 2004



Heather M. Molleur
Reg. No. 50,432

12400 Wilshire Boulevard
Seventh Floor
Los Angeles, CA 90025-1026
(408) 720-8300